

### **ABSTRACT**

A loop powered level measurement and time of flight ranging system with power management. The level measurement system comprises a controller, a transducer for distance ranging, a power supply, and a power management stage. The power management stage comprises a shunt current regulator and a circuit for charging a storage capacitor. The shunt current regulator shunts excess current from the current loop and the circuit charges the storage capacitor. The charging of the capacitor is monitored and stored energy is applied to the transducer to make a level measurement. During charging, the controller continues to operate a user interface and communication module.